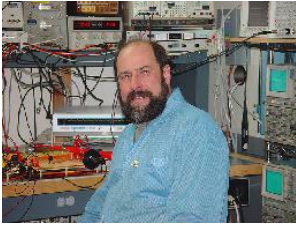


# 2012 HIGH VOLTAGE DESIGN WORKSHOP

*Attend On-site or by Webinar*

A High Voltage design workshop will be conducted by Steve Battel combining lessons of theoretical and practical design concepts with experience and knowledge from many successful Flight Projects.

There is **no cost** for participation. Registration is necessary to send participants Webcast and latest workshop information.



## **2012 High Voltage Design Workshop: Part 1**

**Lecturer: Steve Battel**

Steve Battel is known within the space community for his engineering work related to high voltage systems and precision analog electronics used in space science instrumentation. He is a graduate of the University of Michigan and has 35 years experience as an engineer and manager for NASA and DoD projects. He has developed 58 different high voltage designs for space applications with more than 380 units built and 150 units successfully flown.

President of Battel Engineering since 1990, Steve has also held engineering and management positions at the University of Michigan Space Physics Research Laboratory, Lockheed Palo Alto Research Laboratory, University of California, Berkeley Space Sciences Laboratory and the University of Arizona Lunar and Planetary Laboratory. At UC Berkeley, Steve was the Project Manager for the Extreme Ultraviolet Explorer (EUVE).

Recent hardware projects include flight high voltage and other instrument electronics for the Mars-Phoenix TEGA-MS sensor, the Mars Science Laboratory SAM Instrument and the AIM-CIP camera system. Current hardware development work includes high voltage and low voltage flight electronic systems for the LADEE and MAVEN missions, prototype electronics for the ExoMars MOMA instrument and developmental high voltage systems for space tether, x-ray spectroscopy and miniaturized ion propulsion applications.

Past development projects reach back to Dynamics Explorer and Galileo including the high voltage and low voltage power systems for the MCP cameras used on the SOHO, FUSE, IMAGE, GALEX and HST-COS missions. Steve also developed the low-noise gyroscope power electronics for the GP-B program along with multiple high voltage and lower voltage electronic systems for the Rosetta, XTE, Cassini and Huygens Probe missions.

Electrical Engineering Division  
Code 560, NASA GSFC

**DATES:** APRIL 2-3, 2012

**TIME:** 8:30 AM Start

**PLACE:** Conference Room E100  
Building 200, South Campus 11101  
Johns Hopkins Road Laurel, MD 20723-6099

### **DAY 1**

- APPROACH TOWARD RELIABLE HIGH VOLTAGE REQUIREMENTS & SYSTEMS
- HIGH VOLTAGE COMPONENTS & TECHNOLOGIES
- INSULATOR DESIGN & INSULATION METHODS
- ELECTRIC FIELD CONTROL & ANALYSIS TECHNIQUES
- RECEPTION (5:30 – 7 PM)

### **DAY 2**

- PAST FAILURES & LESSONS LEARNED
- PROCESS CONTROL & QUALIFICATION
- SYSTEM AND CIRCUIT DESIGN APPROACHES & DESIGN RULES
- MATCHING UP TO THE USER
- CONSIDERATIONS WHEN SHRINKING A DESIGN
- ENVIRONMENTAL DESIGN DRIVERS
- GSE AND SAFETY CONSIDERATIONS

### **REGISTRATION:**

PLEASE USE ATTACHED FORM

### **QUESTIONS:**

CONTACT ERIC YOUNG

[ERIC.YOUNG@NASA.GOV](mailto:ERIC.YOUNG@NASA.GOV)

***No Course registration fee.***

***Food and drink will be available for purchase for on-site participants.***



Power Systems Branch  
Code 563, NASA GSFC



Jet Propulsion Laboratory  
California Institute of Technology



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NESC Academy